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ABSTRACT

This paper describes the Shakespeare Project, an interactive videodisk computer program developed at Stanford University which permits students to study, design, and enjoy theater. The prototype consists of three basic programs, which are described in detail: (1) a videodisk-based "tutorial" called "Page to Stage," that teaches how a performance is created by interpreting the text; (2) an annotated visual database of theater and art history on videodisc, called the "Browser"; and (3) a computer animation program, "The Theater Game," that allows students to simulate design and staging choices, and to create an actual scene on the computer screen. Testing of the prototype with undergraduates, high school students, and 10-year-olds at an experimental elementary school is reported and applications of this type of system in other disciplines are described. The two videodisc-based components were programmed on two computers, an Apple Macintosh and an IBM vision attached to a videodisc player. (2 references) (EW)

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The Shakespeare Project

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Abstract

The Problem

A broad spectrum of important subjects cannot be successfully taught within the constraints of the traditional classroom. The creative arts, for example, are notoriously resistant to standard teaching practices. As a result, many of our culture's richest and most vital traditions, such as theater, become tame and impoverished in the classroom: unidimensional.

What Is To Be Done

The extraordinary development of technology in recent years allows educators a dramatic new possibility: how, at last, to teach those complex, elusive subjects like the creative arts. The Shakespeare Project—the most comprehensive effort to date linking the arts and humanities to both the power of the computer and the flexibility of the videodisc—offers educators a radically new way to teach not only Shakespeare and theater, but also those disciplines like psychology, sociology, and communications, which depend upon the observation of complex, visually "dense" and hard-to-record events.

Through its innovative interactive videodisc computer program, the Shakespeare Project grants students options never before possible, bringing even novice students into intimate contact with the entire process of theatrical creation. Using the Shakespeare Project, students go beyond a mere reading of the text: they *see* a performance, study it in detail, interact with it, isolate and analyze its components, simulate its processes, and make the play's world their own. The Shakespeare Project freshens students' perceptive powers—opening them to the marvelous richness not only of theater, but of all human interactions. By offering a new form of learning, the Shakespeare Project will thus create a new type of learner.

Who Will Do It

The Academic Computing and Information Systems of Stanford University is sponsoring the Shakespeare Project. Stanford professor Larry Friedlander, who has been teaching Shakespeare and acting for more than 25 years, will direct the project. Staff from Stanford Instructional Television Network (SITN) and Instructional Research and Information Systems (IRIS) will implement the project, assisted by a panel of distinguished advisors especially assembled for this project.

Project Summary

"Educators should reconceptualize the "good" student, not as one who sits, listens, agrees, cooperates, and regurgitates, but as one who is critically aware, curious, questioning, and active but sensitive in critical disputation."
Jarvis, Lifelong Learning

The Problem

A broad spectrum of important subjects cannot be successfully taught in the traditional classroom. It has often been argued that fields like the creative arts can be "learned but not taught"—that creativity does not lend itself to the standard teaching practices so prevalent in disciplines such as math or biology.

Theater, for example, has proved itself particularly elusive in the academic setting because of its complex, "mixed" nature—the way it daringly combines elements of painting, music, literature, dance, psychology, and even anthropology. Like the novel, theater is a narrative with a relatively stable but "dense" text. Like dance or music, theater also moves forward in time in ways that don't easily allow the viewer to stop or study the "text." As a social spectacle, theater also recalls the complexity of public ritual, while its concern with interior motivation and role-playing connect theater to the intricacies of psychology and philosophy.

One can understand how difficult (if not impossible) it is to convey the complex, elusive qualities of such a mixed form in the traditional classroom, where a great, complicated play such as *Hamlet* is usually taught merely as a "text," as a branch of literature—an approach that robs the play of much of its creative essence. All too often in the academic setting, theater—one of our culture's oldest and most vital traditions—becomes tame: unidimensional.

The Solution

The extraordinary development of technology in recent years allows educators a dramatic new possibility: to teach complex, elusive subjects that have hitherto resisted the academic setting. The Shakespeare Project is the most comprehensive effort to date linking the creative arts to the power of the computer and the flexibility of the videodisc. It offers educators a radically new way to teach Shakespeare and theater (or any complex, hard-to-record live event, be it an intense session between psychologist and patient, or a complicated maneuver among players on the football field).

Through its innovative interactive videodisc computer program, the Shakespeare Project grants students options never before possible in the traditional classroom. Using the project, students can:

- "Attend" rehearsals with directors and performers.
- "Discuss" a play's key issues with interviewed actors.
- View and instantly compare several intriguingly different versions of a particular scene.
- Design their own "versions" of a crucial scene on a computerized, digital stage.
- Peruse an "archive" of hundreds of historical photographs documenting the rich array of sets, costumes, and props.
- Browse through an "electronic" wardrobe and prop room, choosing costumes that suit their own interpretation of a play.
- Create their own "case study" of a character's motivation and psychology.
- Skip through the expanse of a play almost instantaneously, making comparisons that reveal the large, embracing structure of the complete play.
- "Read" a staged performance with the ease and freedom with which we now read a text—stopping, starting, viewing, re-viewing, and selecting segments for detailed study.

In short, the Shakespeare Project allows expert or novice students to study, design, and enjoy theater. The project familiarizes students with the entire process of theatrical creation—from finding an interpretation and a guiding concept, to choosing appropriate designs, to actually envisioning and executing the details of performance. Using the Shakespeare Project, students go beyond a mere reading of the text: they *see* a performance, study it in detail, interact with it, isolate and analyze its components, trace its processes, and make the play's world their own.

Innovatively allowing students to move from theory to practice, from discussion of critical problems to the testing of those problems in performance, the Shakespeare Project freshens students' perceptive powers—it opens students to the marvelous richness not only of theater, but of all human interactions. Students gain a rare learning experience: how to deal with creative situations in which there are no "right" or "wrong" answers. Students who, sadly, have been trained to confuse timidity with "correctness" learn the importance of "letting go"—of allowing their imaginations free play. Exposing students to problems that have no fixed or single solutions, the Shakespeare Project provides students with a greater tolerance for complexity, for what the great Romantic poet Keats praised as "negative capability"—the ability to exist "in uncertainties, mysteries, doubts." In short, students using the Shakespeare Project can move closer to being the flexible, open, responsive and self-confident adults that our culture needs.

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The Background

The Shakespeare Project grew from a longstanding concern with the teaching of the creative arts. To enhance a student's understanding of an artist like Shakespeare, educators have long looked for ways to supplement ordinary curriculum (which tend to emphasize only the plays' texts) with a wider, richer view of the entire theatrical process.

In 1984, Stanford University funded development of an animated theater simulation. In 1985, IBM, impressed with the initial results, contributed additional funding for a feasibility study to develop videodisc-based theater lessons and tools. During the preliminary stages of this feasibility study, it became clear that the advantages of the technology being considered applied to a wide spectrum of disciplines. Stanford professors from psychology, anthropology, athletics, and the arts gathered to discuss how interactive video could help express the rich and complex human interactions that form the basis of study in their fields.

It was agreed during this preliminary stage that the Shakespeare Project, already under way, would serve as a model for development of similar systems in other disciplines, and that the tools and lessons of the Shakespeare Project would be designed to be as transferable as possible. It was also agreed that the purpose of the feasibility study was this: to test whether, in fact, a complex theater concept could be taught through videodisc and computer technology.

We designed and built a prototype, not to be used as a kernel for future development, but to test our basic assumptions. The prototype consisted of three basic programs:

- A videodisc-based "tutorial" called Page to Stage that taught how a performance is created by interpreting the text.
- An annotated visual data base of theater and art history on videodisc, called The Browser.
- A computer animation program, The TheaterGame, that allowed students to simulate design and staging choices, and to create an actual scene on the computer screen.

The two videodisc-based components were programmed on two computers, an Apple Macintosh and an IBM Vision attached to a videodisc player. The students worked at a keyboard, facing a screen that displayed film, graphics, text, instructions, and student responses. Students controlled the pace and direction of their learning by touching the screen to select items from menus or displays.

Page to Stage included four videodisc-based lessons: text, subtext, beats, and blocking—about three hours of instruction in all. These lessons showed two-minute segments of *Hamlet*, with three versions of the same scene. Students analyzed the way the scene was "built up" from a text and investigated how and why performers arrived at certain interpretations of a scene (see Figure 1).

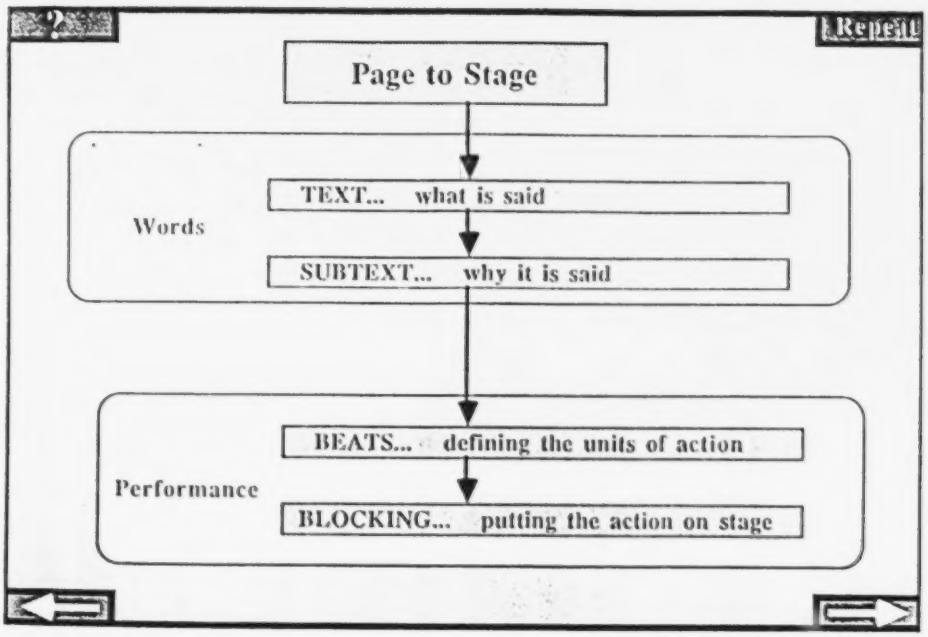


Figure 1.
A computer screen from Page to Stage showing the structure of the lesson.

The lessons showed that differences in performance sprang from different readings of the same text. Performers work by first analyzing the text, then developing a psychological "script" for the scene, which is called a *subtext*. They then transform this interpretative material into a performance.

For example, Jean Simmons, playing Ophelia against Olivier's Hamlet, has decided that Ophelia is terrified of Hamlet, but also deeply in love with him. She must convey this interpretation to the audience by the way she speaks her lines. Her first line in the nunnery scene is, "Good my Lord, how does your honor for this many a day?" As she begins she does not look at Hamlet, but stonily recites the first three words almost to herself, in embarrassment and fear. Then, feeling his gaze upon her, she glances at him, melts in affectionate tenderness, and sighs in a completely different tone, "How does your honor for this many a day?" The actress has translated her psychological interpretation, her subtext, into performance choices, or *beats*. Students then imitated the performers' procedures and, working with a new text, built up a full performance, ending by staging the scene on our TheaterGame, which will be described later.

The Browser. The prototype's second component consisted of a data base of approximately 1,000 images and 200 pages of text on Shakespeare—his life, productions of his plays—and the history of theater from the ancient world to the present. As students looked at an image, they could touch the screen to read an explanatory text. The text also suggested other related sequences of images that students might explore. For example, if students looked at a picture of a court scene in *Hamlet*, they might be directed to pictures showing Elizabethan court life.

TheaterGame. The prototype's third component involved a staging simulation on the Macintosh computer. Using the TheaterGame, students could select stages, props, and characters in various costumes. They could create a computer "movie" with the actors and actresses moving through a scene according to the text and the students subtext. The TheaterGame was not tied to any one scene or play, and worked equally well for Shakespeare, Ibsen, or one's own work.

At Stanford, we used Page to Stage and The Browser with students from two small undergraduate classes, "Shakespeare Through Performance" and "History of Theater Design," and from a large survey course, "Art and Literature in Western Culture." We tested the TheaterGame at Stanford, at San Francisco State University in a special graduate program in directing in the drama department, in an English class at San Francisco's Lowell High School, and at Bank Street School (an experimental elementary school in New York) with a group of 10-year-olds who used it to create stories.

Researchers observed students working on the tutorial, and interviewed them after each session. Researchers found that the tutorial's most immediate strength was that the students tremendously enjoyed using it. Students were fascinated by the chance to see different versions of a scene, they liked looking at and really noticing the details of an actor's performance, they liked having a library of examples with which to play, and they appreciated the expert comments on the scenes. In general, they felt a privileged and intimate connection with the material, as though they had been invited backstage by Olivier himself.

Part of their delight was in the sense of freedom and adventure they gained from watching the widely differing versions of a scene. This experience of the freedom possible, indeed necessary, in interpretation acted as a kind of personal permission for them to explore on their own—permission to think wildly and boldly. This new sense was reflected in students' class work, in a willingness to make risky choices and to appreciate the daring and outrageousness of Shakespeare's own imagination.

Slowing down to work through a text or a scene, instead of floating through the experience vaguely accumulating impressions, forced the students to pay careful attention to the significance of each moment, each detail, and to come to a precise decision about each moment of choice. As one student said, "(I learned) to be simple, taking analysis line-by-line (moment by moment) rather than in general."

What most struck them were those elements they had never previously considered when thinking of theater: the significance of an actor's pause, the use of space and timing to create emotion, and the way these details affected their reactions as spectators. "I think the only way to understand beats is to watch them. You cannot learn about beats simply from the text," remarked a student.

Working on the character's motivations and interior monologues, they saw that theater represents the actions of real human beings, operating out of concrete circumstances and needs. Another student commented, "I analyze too complicatedly (sic). The computer's analysis was always simpler and more emotionally concrete than mine. I should get simpler and more 'basic' about feelings—that is, away from 'why' someone is behaving a certain way and more about what the behavior actually is."

The quality of the workmanship and creative skill now visible to the students was an impressive learning experience in itself. Again, a student remarks, "(there are) endless possibilities and nuances of interpretation . . . these are not flat characters, but characters with a whole history and network of feelings and motivations."

Instead of valuing Shakespeare for some vaguely felt quality of "seriousness" or "depth," students glimpsed the exquisite care and precision of the text and of the performers' interpretive labor. They were able to see how difficult the performer's task is, and thus were able to acquire some standards with which to measure the accomplishment. "I learned . . . how actors and actresses, without saying anything, can express a great deal."

Students enjoyed simulating and participating in the creative work, collaborating with the performers, comparing their responses with the expert's, and making something of their own. It was important to the students that their activities and responses mattered. For example, students enjoyed having a record of their own reactions and of their work; it made their feelings seem significant.

In short, the prototype was a considerable success: "I think this is a great program—very enjoyable. It entertains and intrigues while it educates."

The Next Step

Benefiting from its exploratory work on the prototype, the Shakespeare Project has expanded and refined its design in the creation of **On Stage. On Stage** adds new lessons and capabilities, as it integrates the three components of the prototype into one simple work space.

On Stage will consist of three programs:

- A **Scholar's Kit**, which allows students to analyze a scene and a play in great detail.
- A **Director's Kit**, which allows students to design a scene creatively.
- A **Director's Notebook**, which supplies a simplified version of the first two programs for use at home on a personal computer

The programs will run on a computer that controls a videodisc player. The performances and still images will be recorded on two videodiscs.

Using the Scholar's Kit, students select a text or performance for study, and are given a "menu of procedures" they can use, in any order, to analyze the work. Each procedure allows them to work closely with one aspect of the play, the language, the psychological motives and constraints, the performance techniques, the sources and uses of the design, the structure of conflict and resolution, and so forth. (see Figure 2).

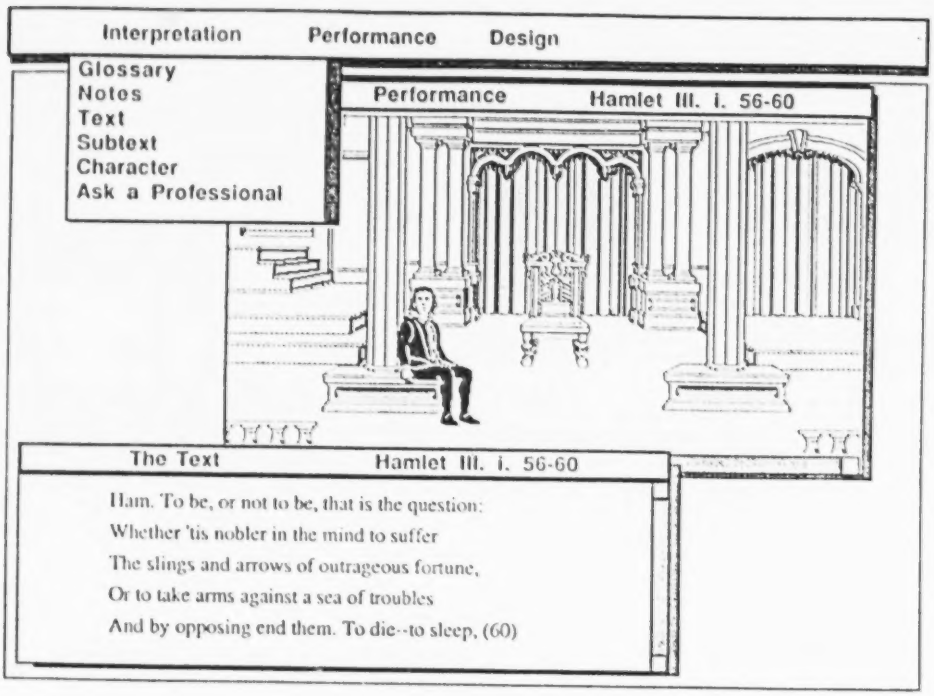
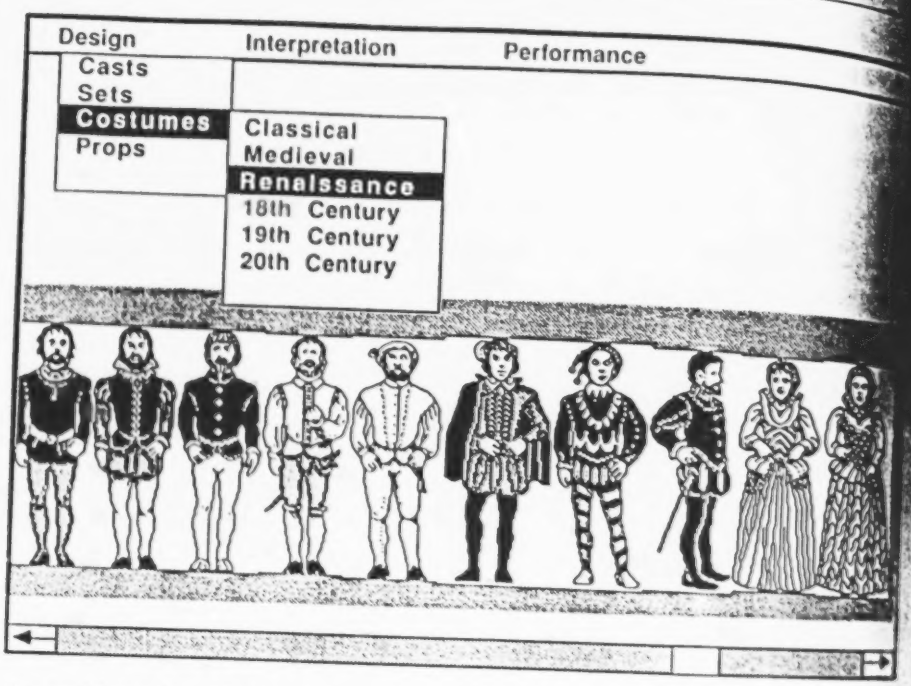


Figure 2.
The Scholar's Kit. The screen shows the choices available, along with the Text and Performance windows. The student has chosen Interpretation and has selected a text, which is shown in the lower part of the screen. The controls at the right side and bottom of the windows scroll the text and control the playback of the video.

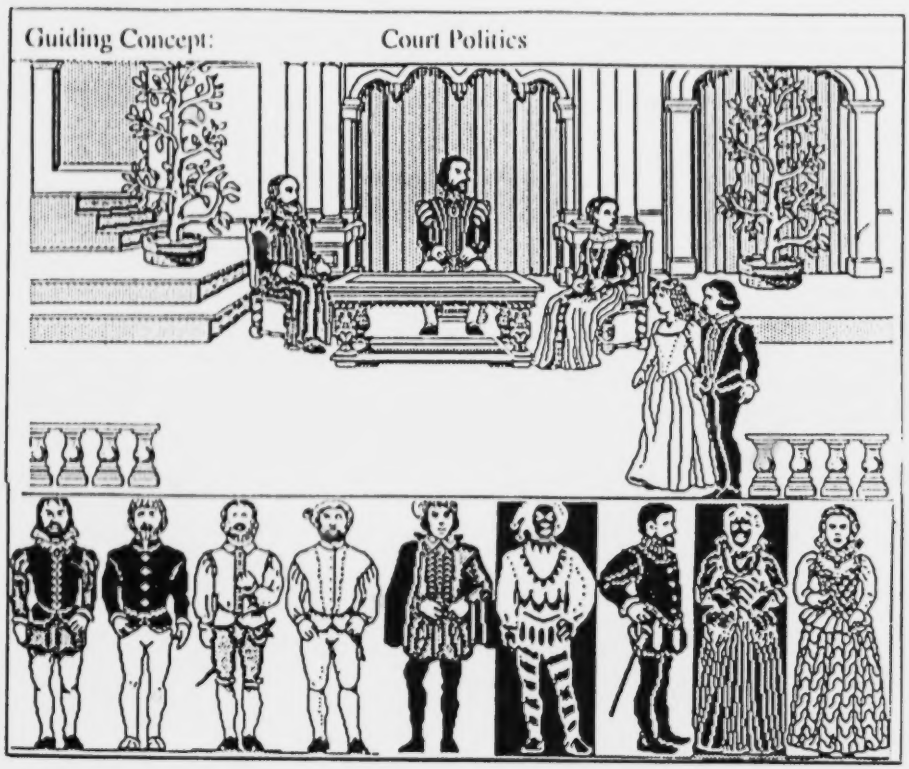
The Director's Kit lets students choose the cast, costumes, and stage design for their interpretation of a scene and then make an animated "movie" or record of their work. The students are directors and designers. They make theater, discovering the process, the chain of choices, that leads to opening night (see Figure 3).

Figure 3.
The Director's Kit. Students start by choosing from the menus. Here the student has chosen to examine Renaissance costumes.



An archive of hundreds of costumed actors and props can be viewed on the videodisc. The students browse through this electronic wardrobe and prop room, make selections that suit their interpretations, and place all these elements on a staging space, where they will, in fact, work out the scene. Students move characters across the stage to create blocking patterns, which are recorded and can be played back (see Figure 4).

...ector's Kit. The ...has chosen the desired ...and will transfer it to ...e area. When all the ...elements are selected, ...dent can animate the ...



The Director's Notebook stores the students' work together with portable versions of some of On Stage's lessons, so that the work can be saved and used at home or school.

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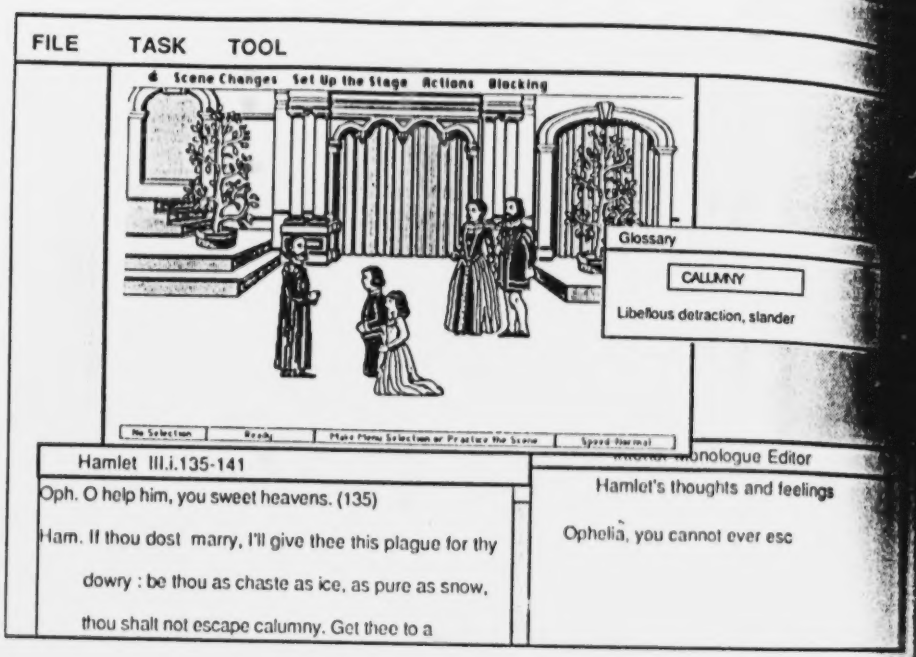
Figure 5.
The Director's Notebook. The screen shows a text from Hamlet, with the corresponding interior monologue, glossary, and animated stage. The student is in the process of developing a subtext for the scene.


FILE
TASK
TOOL
Scene Changes
Set Up the Stage
Actions
Blocking
Glossary
CALUMNY
Libellous detraction, slander
Hamlet III.i.135-141
Oph. O help him, you sweet heavens. (135)
Ham. If thou dost marry, I'll give thee this plague for thy dowry : be thou as chaste as ice, as pure as snow, thou shalt not escape calumny. Get thee to a
Hamlet's thoughts and feelings
Ophelia, you cannot ever esc

In On Stage, students do not follow a rigid tutorial format, but choose activities as they need them. If they are unfamiliar with a particular concept, they can request a "mini-tutorial," and can also go to a library of annotated examples where they can practice at their own pace.

The sequence of activities is determined by the students' goal, whether it be to interpret a scene, to describe a character, or to design a performance. The resulting work is arranged and recorded for them on disc or tape, and can be used for further study. In Tasks and Methods (Section 5), we will describe the multiplicity of activities available in these three programs, but we may now pause to mention three representative ones.

Watching a scene and comparing different versions. On Stage allows a close, comparative viewing of several versions of a scene. Viewing different productions of *Hamlet* one after another, for example, changes the way that students perceive theater.

Consider the nunnery scene in *Hamlet*. Hamlet seems very angry with Ophelia, tells her he does not love her, and accuses all women of infidelity and treachery. At the same time, however, he expresses his longing and love for her and accuses himself of unworthiness. What is going on? What is happening in Hamlet's mind? Does Hamlet love Ophelia, or does he hate her? How can students make sense of all these contradictory bits of information?

On Stage allows students to address questions like these by viewing several versions of the same scene. For example, in one version with Nicol Williamson, Hamlet is rather seedy and lascivious. Here the performers have solved the illogicalities in Hamlet's language by imagining that Hamlet is playing with Ophelia's feelings because he wants to seduce her.

In contrast, in the Russian version a tortured, handsome Hamlet is discovered brooding under the stairway in a dark hallway by a fragile Ophelia, whom he proceeds to humiliate and terrify. This Hamlet's illogical behavior is portrayed as stemming not from sexual teasing, but from the repressed violence and paranoia of a man who both loves Ophelia and suspects her of treachery, and who resents the attraction he feels toward her.

Notice that both versions present appropriate, compelling solutions to the same puzzle; yet they are utterly different. The entire meaning of the scene has changed—the very story, events, and emotions.

As students articulate and evaluate different interpretations "they are more likely to realize that interpretation is an art rather than a science," and they are emotionally freed from the tyranny of the "right" answer. They develop their own standards of judgment and taste and are encouraged to undertake a bold investigation of the possibilities of theatrical interpretation.

Creating a subtext. On Stage also allows students to master one of the central concepts in theater, the subtext. Actors create an inner life for their characters by imagining the characters' basic assumptions, their goals and intentions, their feelings about the situation they are in and the people they are with. These decisions about the characters' inner life form the subtext of the interpretation, the level of feeling and motive operating beneath the text.

As students using On Stage observe a character, they try to imagine what that character is thinking as he or she acts. For example, as Hamlet says "Are you honest?" he may be thinking "I don't trust you" or conversely "I love you." Students type this "interior monologue" on the keyboard, and it appears as a subtitle on the screen. Working with this monologue, students formulate the character's general motives and needs, what obstacles face the character as he attempts to get what he wants, and what strategies he employs to overcome the obstacles.

In order to create a subtext, students have to become active and engaged viewers, to "slow down" and carefully watch and judge. They must observe the actor closely, and by empathizing with the character, imagine the character's psychological state and the precise flow of his motives and thoughts. They also have to notice how thoughts spring from motives and self-interest; and how motives in turn flow from deep assumptions people have about their lives. They thus make visible the constant and fascinating tension between what people want and think, and what they actually do.

Analyzing relationships between characters. Plays are long and complicated events. One way to grasp the overall shape and movement of work is to follow major characters through the course of the action and no the ways they change and develop. For example, students using On Stage may be reading the text of the nunnery scene from *Hamlet* and want to examine the relationship between characters. They can select any two characters (see Figure 6).

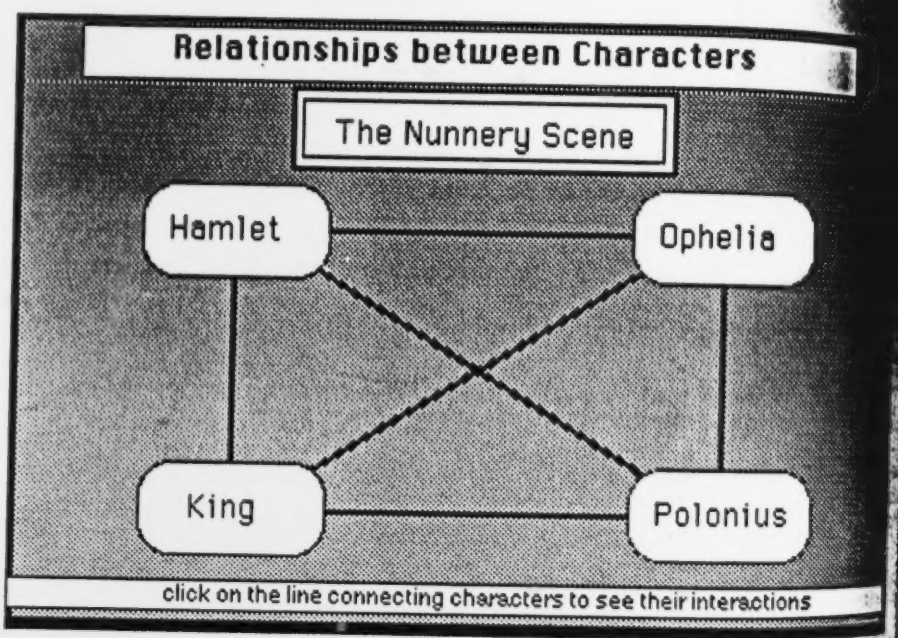


Figure 6.
Choosing the characters. The screen displays the characters from the nunnery scene with lines connecting them. Students indicate a line to choose the pair they want to study.

The program then offers the students a selection of the most important scenes between the two (see Figure 7).

...7.
...g the scene.
...ing the relationship
... Hamlet and the king.
... student has selected the
...ery scene and will work
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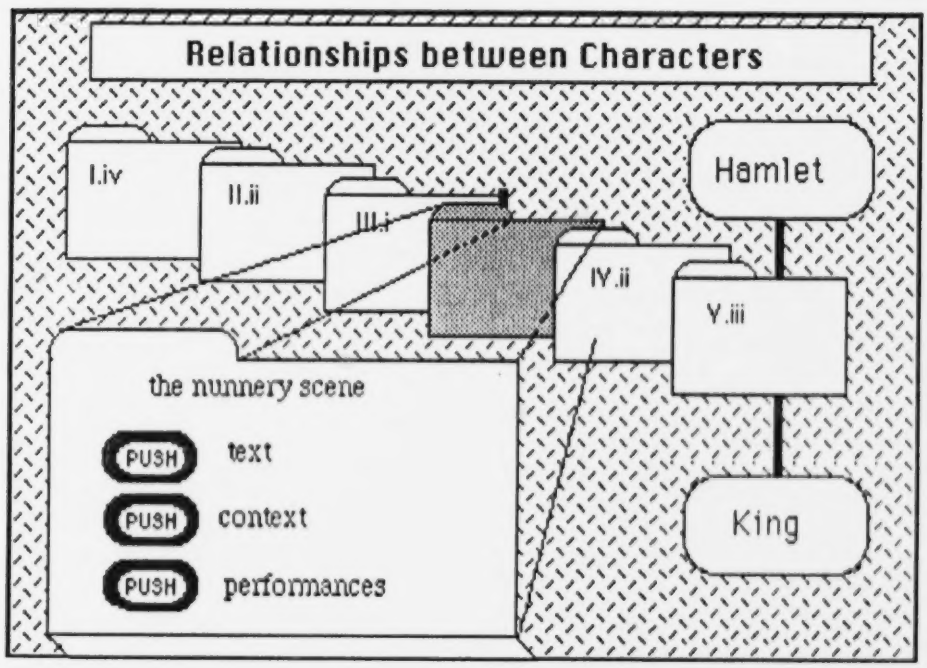
... performances.



The student's goal in On Stage is to construct a full portrait of the characters by analyzing each scene for the evidence it contains about the characters' lives, emotions, thoughts, and beliefs. They can examine the language for information and clues, and then assess how this evidence has been interpreted and presented by the different performances. Of course, each performance will have interpreted the evidence differently. Students can accept a particular interpretation or come to their own decisions.

They assemble this evidence in a *character portfolio*—trying to reconstruct a complete history, description, and analysis of the character, including information that is missing from the text. They then plot how the character changes and develops. Students use the portfolio to argue a case, citing sources, and advancing interpretations of specific moments in scenes. They can include evidence from performances by "clipping" images and segments of scenes and "pasting" them in the portfolio, thus creating a kind of multimedia essay.

Students learn how to discover and assess evidence, to evaluate choices, and to see the interconnections among characters. They can take the portfolio that they have created and use it at home or in class, to further analyze the play.

The Summary

On Stage does not overwhelm the students with technology, nor imprison them in narrowly conceived learning paths. It offers a simple, open space for study and creation.

With On Stage, students control the pace, sequence, and goals of their learning. However, they are also guided and supported at every turn by tutorial and example; and are supplied with the information, concepts, and tools they need. Working through the lessons, they have the satisfaction of completing many intriguing tasks. At the end of their work, they see their efforts in the product they take away with them.

Instructors will remain in control of the teaching and the content matter. On Stage does not reflect any specific approach to Shakespeare, but simply provides tools and the basic materials for study. Teachers can easily rearrange these materials by linking film segments and images with text, animations, and graphics, and in effect, design completely new lessons. By substituting a new videodisc with materials from another play, On Stage can be directly adapted for use with a dramatic work by any playwright.

On Stage is extremely flexible. It can be used by one student or by groups of students; at home, in a classroom, or in a rehearsal hall; by beginning students or professionals; as a one-time resource or as the basis for an entire course.

Finally, as we will describe in the next section, On Stage's programs can be adapted for use in other disciplines that also focus on events that are difficult to present in the classroom.

Significance

This project is on the cutting edge of computer animation and creates a whole new class of "electronic marionette" applications for teaching that can be generalized to nontheatrical applications. *Barbara Bowen, Manager, External Research, Apple Computer, Inc.*

The invention of books revolutionized our study of the spoken word. Language was taken "out of time," so to speak; readers could move at their own pace through the work, without regard for chronological order. Details could be examined at leisure, comparisons made with other pieces of speech, and wholly new utterances could be created by selecting and combining unrelated parts. These wondrous capabilities have remained the foundation of our methods of learning for many centuries.

Advances in technology now promise an analogous transformation of our study of live events. All the pieces are in place, and solutions are appearing rapidly. On Stage can contribute a significant part to this transformation through programs that permit film to be handled like text, taken out of time, examined, annotated, recombined. While On Stage's immediate goal is a change in the way we can teach theater, On Stage will also contribute to a widely based change in education as a whole.

Current Status of Teaching Shakespeare

Inadequacies of current approaches. Shakespeare occupies a unique place in our schools and in our culture. No other figure is held in such high esteem by both the critics and the public. The fascination with Shakespeare is endless and deep: festivals flourish, new popular works based on the plays appear regularly, and he is studied throughout the land, from the lowest to the highest levels of our schools.

The plays were written for the mass audiences of Shakespeare's time, and they still can enthrall the widest range of viewers or readers. Yet a considerable group of students never overcome the initial obscurity of the language and the unfamiliarity of the theatrical conventions.

Film and television offer students competing models of performance and participation that do not prepare them for the kind of concentrated effort required by the plays, whose visual and sensual impact is lost in a traditional classroom.

On Stage is designed to supplement the strengths of traditional methods of teaching, and to remedy their inadequacies. There are three ways Shakespeare's plays are currently taught: by reading the text, by watching a performance, and by working on a production. Each way provides something irreplaceable, and each has its limitations.

Approach Through Text. Shakespeare wrote plays, not books. As David Riggs, eminent historian of Elizabethan stage, writes,

> We forget that when Shakespeare died in 1616, half of his plays, including masterpieces like *Twelfth Night*, *Macbeth*, *Antony and Cleopatra*, and *The Tempest*, had not been published and had little ch of ever finding a reading audience; Shakespeare regarded them as th property of his acting company, the King's Men. Perhaps the greate single frustration of teaching a Shakespeare lecture course today is t prospect of spending an entire quarter teaching students texts that we never meant to be read.

Even when we consider the text not as a replacement for the play, but as record of a performance, problems remain. The text gives only a partial record of the performance. To complete a reading of the text, students mu imagine the play being performed. But to ask students to create a perform in their minds is to demand of them what is difficult even for the most experienced professional, for the text does not clearly describe the performance. Rather, the text suggests a pattern of possible choices to be made by a group of workers within the context of a specific performing situation. It is only as these decisions accumulate ("I will pause here; I will turn there; I will design blue costumes or metal furniture") that the "meaning" of the production slowly emerges. Any one production of *Hamlet* is a unique creation arising from the one-time collaboration of playwright, designer, director, and performers.

In fact, there can be no final, "correct" version of the text. Diametrically opposed interpretations may be equally powerful and legitimate. When the only experience students have is the text, it is hard for them to understand how different choices could be equally valid. Are there not rules that control interpretation? How can one actor be "better" than another if they both are following the same script? Only by teaching students to regard the text as a set of suggestions for a performance can students grasp the standards of judgment that govern theater.

We need to help students imagine a performance from the text, by giving them extensive and intimate contact with performance. This is true in other fields notation in dance, musical scores, diagrams of a football play, transcripts of a therapy session, a doctor's written diagnosis of an illness, missals in a church; all these are poor records if students lack extensive experience of the events to which they refer.

Approach Through Watching a Performance. Watching the play on stage or on film obviously solves one major problem. Students see the event. However, there are other problems:

- Students watching a performance tend to assume that they are seeing the authoritative version. Any performance, however, is merely one possible realization of the script. Students need to develop standards of taste in order to compare and evaluate different performing versions.
- On film, the world of process, creation, and choice is invisible. In order to judge the performance, students need to understand what choices were made in the course of the production.
- A performance must be studied slowly and carefully, for it is so densely packed with detail and implication that even the best students can only absorb a fraction of the experience.

Compared to text, film is an inflexible medium. We can "flip" through a book, isolate passages, read and reread, quickly compare widely separated passages. We are in firm control; our interests, rhythms, habits, and needs determine the study process. We make decisions, we select, underline, omit, review; in fact, we imagine a world. We need a comparably flexible and interactive way to work with film.

In brief, students need to know what to watch in a performance and how to evaluate what they see.

Approach Through Participating in a Performance. Students' actual participation in performance provides a powerful supplement to reading text and viewing film. Students vividly experience the complex unfolding of the interpretive event as they enter into the social, sensual, and theatrical worlds of the play. However, as a general and embracing method of teaching drama, it, too, has problems.

- Students need to experience a fully realized, excellent production, for the full range, daring, and power of theater are revealed only in professional work. Often neither teachers nor students have enough experience to produce an exemplary version of a play.
- Practical theatrical people are rarely trained to think abstractly about their work, nor to help students to articulate and generalize broader implications. Students, worrying about cues and lights, usually do not ponder large questions and meaning.
- Theater is extremely costly. Most schools cannot offer theatrical opportunities to all students.

In summary, students need to see, study, and participate in theater. On Stage offers students the chance to do all three in an integrated manner.

The Teachers

The criticism of Shakespeare in our century, starting with the work of such great pioneers as Granville-Barker and Chambers, has greatly benefited from approaches that combine traditional literary scholarship with a deep knowledge of the world of theater. On Stage allows these kinds of insights to be demonstrated in the classroom.

On Stage will appeal to teachers as a chance to incorporate their feeling for theater directly into the classroom. Professor Ron Rebholz, a distinguished teacher of Shakespeare at Stanford, described exactly that desire in his letter of support for On Stage:

> I have been following, on the sidelines but with great interest, the development of your Shakespeare Project.
>
> Obviously Shakespeare wrote his plays to be performed. Without slighting the attention they deserve as great literary texts, I know we agree that they should, first and foremost, be taught and studied as texts to be created and re-created on the stage or in comparable media, like film or videotape.
>
> As a teacher of Shakespeare for 25 years at Stanford, I have been frustrated by the limited opportunities to teach the plays and get my students to study the plays as works for and in performance. Simply to get them to see the plays I once, several years ago, organized a year-long Shakespeare film festival; and the possibilities of seeing the plays have been enhanced by the advent of videotape versions, especially the BBC-PBS series. But seeing and studying are two different things. I have since incorporated in my courses staged readings, directed and performed by the students, of scenes from the plays we study, but the quality of the scenes is not high and the experience benefits mainly those who do the readings. If I understand the thrust of your project, it will offer a completely new and exciting possibility of *all* my students *studying* the plays as they have been and might be performed.
>
> I don't have to tell you the extraordinary educational value of the experience offered by your project. It will show students the many possible ways of staging scenes and playing characters and the implications of the actual choices for the interpretation of the whole play. Most important, it will make them grasp the point that I have been trying for years to make them grasp in my fumbling ways: Shakespeare wrote *plays*, there are virtually limitless ways of performing them, and some ways are better than others in capturing the "spirit" of the text and in affecting the audience.
>
> I know many teachers of Shakespeare throughout this country and in Britain, and I am confident that they will all greet your project as a genuine and welcome revolution in their teaching of his plays.

Response to news of our project has been gratifying. Professor Rebholz's sentiments are echoed in the more than 50 letters of inquiry and support we have received from all over the country. Professionals whose work is introducing technology into the curriculum have been particularly excited by the prospect of such a new system. We have been invited to participate in conferences in Prague and Brussels on art and technology, and our programs have been written about in many papers and magazines. Both the BBC and the SFB in Berlin will feature the TheaterGame on television programs next winter.

We are particularly proud of the list of internationally prominent scholars, editors, and artistic directors who have consented to work on our advisory board. We feel this interest flows from the recognition that On Stage is a new solution to a critically important educational problem.

The Students

On Stage is designed to enhance the educational experience of the average college student and to extend the world of Shakespeare to the nontraditional learner.

Courses on Shakespeare. On Stage, because of its emphasis on student design and collaboration, should lead to a more fluid and open environment for both students and faculty, freeing the teacher from the restraints of a lecture format, and allowing students considerable independence.

In lectures, the professor could demonstrate basic ideas about staging and interpretation, or could show variant scenes, or do sample stagings on the simulation program. Students could also work privately on workstations, following their own interests, or could do research for papers or student productions. If teachers wished to provide a special focus for their classes, they could author new lessons that reflected their own interests.

Teaching Shakespeare demands that instructors deal with issues from intellectual history, psychology, history of art, and poetry. Instructors necessarily focus on one or more of these approaches, and often do not have much time to devote to teaching theatrical form. On Stage could be used as a weekly activity to supplement lectures. Discussion groups might focus on student assignments done at home or experimental staging exercises in the class itself.

Survey Courses. Many universities require all students to take courses that offer some Shakespeare. In such a large survey course, On Stage could be used in discussion sections and demonstration purposes in class.

Lecturers in such courses often have little foundation in theater and little time to spend on any one subject. With On Stage, students could quickly learn enough about theater to guide them through the readings; they could study on their own at home or in a computer lab, and then do a written assignment.

Special Courses on Shakespeare in Theater. On Stage could form the nucleus of an entirely new kind of class, which integrates the criticism and practice of an art form. Last spring, Professor Friedlander, the principal investigator of the Shakespeare Project, experimented with the creation of a course, called "Shakespeare in Performance," using components of the prototype system.

The students were of all ages, backgrounds, and majors, and did not generally have previous theatrical or artistic experience. Students read plays and criticism, discussed dramatic theory, and applied performance methods to solve problems of interpretation. Students used the prototype for assignments, demonstrated the results in class, then actually performed scenes.

The result was a fluid interchange between kinds of learning—theoretical and practical. The goal was to let students grasp the translations from one domain to another, to understand how criticism aids performance, how performance choices solve interpretive issues, and how concepts translate into design choices.

The course created an environment in which students felt free to make daring choices, and to support and inspire one another. Students with no special talent for theater actually did very nice work—much to their surprise. They learned to watch others and themselves critically, to evaluate creative choices, to find complex standards to measure their own and others' work. They also learned to play, to improvise, to have fun; they discovered that relaxation, curiosity, and joy are powerful aids to creativity.

This kind of course demands teachers who have interest and expertise in both criticism and performance. It is somewhat expensive, since the class cannot be very large, but it provides a powerful environment for expanding students' thinking about art and their own experience.

Increased Access for Nontraditional Learners. Often, students who resist literary and analytic approaches can be caught by the power of visual experience. And once caught and engaged, students can move faster and further than they would have imagined. Because On Stage allows so many levels of approaches, students have opportunities to fulfill many goals, receiving immediate rewards for their efforts.

On Stage provides students with all the instruction they need to use its programs. On Stage can thus reach out to students who, because of poor verbal skills or lack of formal education, are effectively deprived of nourishing contact with classic theater. With no preparation or background, students could watch different versions of scenes; spend time in our practice libraries, looking at annotated segments of scenes and reading explanatory background comments; browse through archives, picking costumes and cast; and move characters around a stage.

On Stage would also appeal to the numerous "lay" people who love Shakespeare—who take their families for weekends to the major festivals, but who lack formal training in theater. The many institutions that provide nontraditional learning, such as community colleges, public libraries, and the educational arms of major theaters and festivals, could integrate On Stage into their programs, granting people a rare chance to learn what happens "behind the scenes," thus deepening their enjoyment of live performance.

Finally, it would not be difficult for a teacher of English, possessed of a love for Shakespeare but with no background in theater, to learn enough from On Stage to include teaching about drama in class; or in fact, to create a new course offering on theater. In this way, many small or poor schools could afford to add theater to their curriculum.

In summary, On Stage would significantly expand the public's access to theater and theater education by inspiring the creation of new classes, by reaching out to learners alienated from traditional education, and by enlarging the repertoire of public extension courses.

A Model for Teaching Art, Not Science

On Stage provides a model for instruction in the arts in general. Theater is not science or math, but an art form; and we need to teach it in ways appropriate to its nature. The form of a work of art is complex, and not easily analyzed. What we say about a poem is less rich than the poem itself. Teaching art, we need to convey a correspondingly rich, complex, and multiple view of the art object.

Our goal is to guide the student to full comprehension of the work without reducing its complexity and power. We need to find a correct balance between mastery of the field (information and history), and developing the student's ability to respond to the experience. We believe that students are capable of enlarging and deepening their insight into the field even if they are not trained or talented in theater.

The center of our instructional technique is not a series of right or wrong answers, but a series of concepts about theater and art. Students see how great performers solve problems, and they read what experts say about those performances. They then imitate the procedures both through working out interpretations and by designing theater. In the process, they develop a tolerance for the uncertainty and multiple possibilities inherent in all forms of art.

Traditionally in the arts, teaching information, while important, is not cen
Instead, students learn by exposure to great works, and by acquiring
techniques of observation and description. In poetry, for example, studen
are asked to read many poems, then they learn to analyze the language, a
finally they read criticism, as models of the analytic or interpretative proc
In short, they sharpen their taste and perception by sustained contact with
works and with high examples of critical response.

On Stage provides similar instruction: students watch many performance
learn analytic concepts and procedures, see many examples of expert anal
and response, and then design a performance themselves.

Our Approach to Learning. Social learning theory (Bandura, 1977) supports the major premises of our instructional design. Bandura's researc has found that people learn a great deal through direct observation of event even when the events are dramatized or portrayed in media such as film or television (Bandura, Ross, and Ross, 1963). Vicariously, viewers construct internal models of behavior that they can later translate into action.

This theory reminds one of the complex transformations that are so central to theater. The actor translates his internal motivations and cognitive processes into behavior, action, and speech. In order for spectators to appreciate the event, they, too, must grasp these relationships, internalize them, understand them in a unified way, and finally respond.

Bandura emphasizes that this complex process is sustained by the excitement of completing "proximal" goals, which are short-range and easily fulfilled. In On Stage, students learn in short sequences, and can easily manage to complete any one cycle of observation, description, and production.

Bandura's model further emphasizes the importance to learning of self-regulating, self-directing, and self-reflecting qualities. Because the environment is swiftly changing, people must continually remain open to new models of experience that they can absorb, internalize, and use.

By moving from study to design, students can externalize and explore their own learning. Guided instruction takes students through the tasks in an orderly and nonthreatening way, which permits students with no particular talent for theater to extend their capabilities. On Stage offers students multip pathways to multiple solutions, allowing them to create at their own level, inspired by the the highest examples.

A Model for Applications in Other Disciplines

While On Stage's programs have been developed for use with a theater videodisc, they can be applied with relative ease to visual materials from other disciplines.

Background. At Stanford, a group of faculty began discussing such applications in the spring of 1985. The initial planning meeting was attended by representatives from the departments of Humanities, Geology, Athletics, Drama, Computer Science, Communications, French, and Italian, and by the director of Stanford's Audio-visual Laboratory. Other faculty members have since indicated their interest in working toward a widespread introduction of videodisc-based instruction into the classroom. The group decided to create a portfolio of applications that could use the programs developed for On Stage.

Applications. Faculty interest in these applications is reflected in the letters they have written describing their initial ideas for applying On Stage to their disciplines. Kris Samuelson of Communications says that the introduction of such programs would be "like opening new windows to learning." Elizabeth Larkham of Dance remarks, "This tool would make dance choreography, technique, and production come alive for the student in ways that might surpass experience of a live performance."

Other instructors are equally eloquent about the effect of having students interact with these complex events. Professor Zimbardo of Psychology writes, "The wonderful thing about this new methodology is its energizing of the learner's involvement with the text, the scene, the decisions to be made, and the predictions of outcomes of various interventions. Then in an instant, the response options materialize, then can be reviewed until the fundamentals are mastered at the student's own pace."

Zimbardo especially welcomed the power of the program to convey the nuances of behavior, and to teach students how to observe with precision: "I could definitely use the technology so well developed by your team to help students better realize certain fundamental principles in social psychology, such as the significance of alternative "construals" of the same environmental situation by different actors and observers. I can think of no better way to aid me in the teaching of the subtle dynamics involved: (a) in dyadic interactions, (b) in nonverbal communication displays, (c) in cross-cultural behavioral differences, (d) in the ways gender roles bias or filter the perceptions of reality, and more."

Professor Zelditch of Sociology emphasized how important visual materials are in his field: "I teach a course called American Society in Film and Literature. Students taking this course read one novel or play each week and see one film each week. The focus is entirely on sociology—that is, not on aesthetic methods or values. Literature and film are used as a method of increasing insight into the society that produces and is portrayed by it." One advantage of using On Stage he cites is in the possible financial savings: "I also foresee a long-run reduction in costs. It costs me about the price of a teaching assistant to rent films through the Meyer Film Service each year. The initial costs of videodisc would be greater, but after that the costs should decrease substantially."

Instructors such as Zelditch and Samuelson already depend on film and vid and could "move up" to interactive video, using both On Stage programs a its workstations. Another professor in sociology, Henry Walker, foresees this technology's increased role within his discipline:

> Professor Bernard P. Cohen and I have just received a generous grant which will permit us to fully computerize our laboratory facilities dur the upcoming year. It is my understanding that the technology you a developing permits interfacing microcomputers with videodisc equipment. If our department had access to such technology, we coul replace much of current instructional and research materials (which a on videotape) with videodiscs. Since it is easier and simpler to locate and play back information on videodisc than videotaped material, I am sure that those of us who presently use videotape would increase our instructional use of video materials. In addition, I suspect that some of my colleagues who do not presently use videotape as a teaching aid would be enticed to do so.

Professor Walker also reiterates Professor Zimbardo's excitement at the opportunities for research offered by On Stage:

> The most exciting prospect for us would be the capability of using the technology in our undergraduate courses which have a strong research emphasis. Several of our courses require students to observe social interaction that has been recorded on videotape, and to simultaneously record what they are observing. By using videodisc equipment interfaced with our system of microcomputers and one of the available "window" programs, we could carry out these activities more efficiently—and at the same time record and store the data students are generating.

Summary. The future development of this project at Stanford will be designed to crystallize a range of ongoing efforts in a range of desciplines at the University. For it will provide a technological context into which a range of individuals—teachers and learners—can supply their favorite "if I only had the capability to..." scenario. Theater will become an alive and accessible field as will many others that are currently "alive only for the moment."

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Larry Friedlander

Larry Friedlander has been a professor of Shakespeare in the Stanford University English department since 1965, and has a background in both literary criticism and practical theater. He has worked as an actor and director in many companies on the West Coast, including the Shakespeare Festivals at San Diego (the Old Globe), California and at Ashland, Oregon. He has long been interested in the problem of integrating traditional Shakespeare education with performance theory and practice. As a graduate student at Harvard, he created an experimental course combining criticism and performance of theater. He has since taught similar courses not only at Stanford, but at the Free University of Berlin, and to professional actors at the London Academy of Music and the Dramatic Arts. Professor Friedlander has a longstanding interest in student theater and theater education. He founded one of Stanford's oldest and largest undergraduate performing groups, The Company, in 1966, and teaches acting and directing for the Drama and English departments. He has also written on the teaching of drama in the university.